

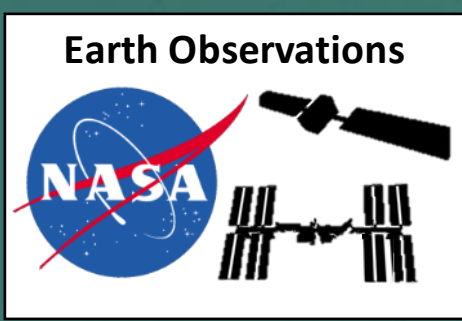
Strengthening Natural Resource Management with New Protected Area Connectivity Tools

Patrick Jantz (1), Żaneta Kaszta (1,2), Scott Goetz (1), Beth Hahn (3), Sam Cushman (2), Kathy Zeller (4), Erin Landguth (5), David Macdonald (2), Nyambe Nyambe & Netsai Bollmann (6), Andrew Loveridge (2,7), Saw Htun (8), Robynne Kotze (2,7), Lara Sousa (2)

NASA A.39 Grant No. 80NSSC21K1942



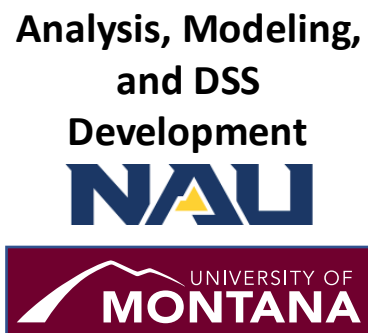
Project Structure



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Scenario Development,
Workshops, Training, Applications



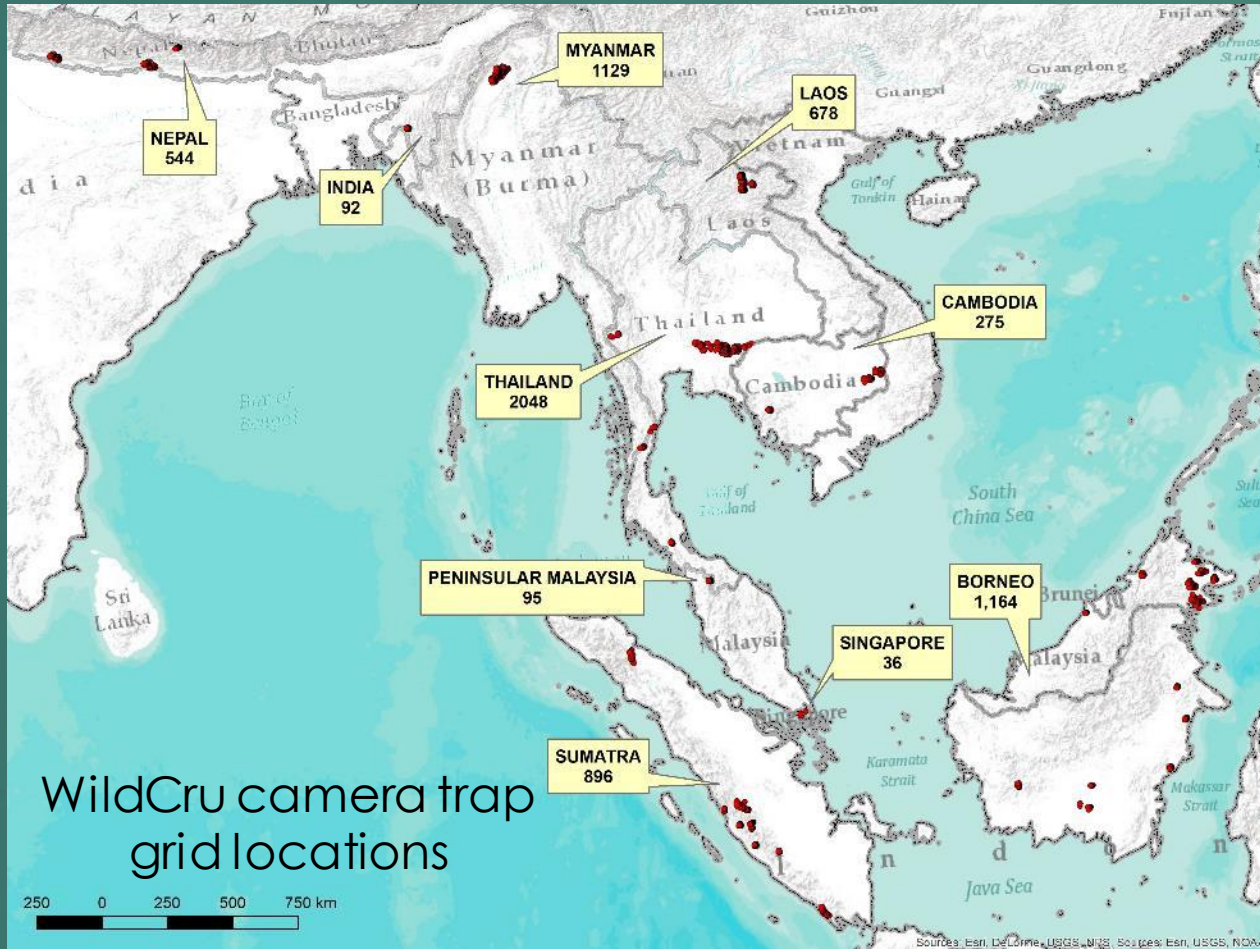
Participatory watershed
management planning exercise
led by USFS, Mount Elgon, Kenya.



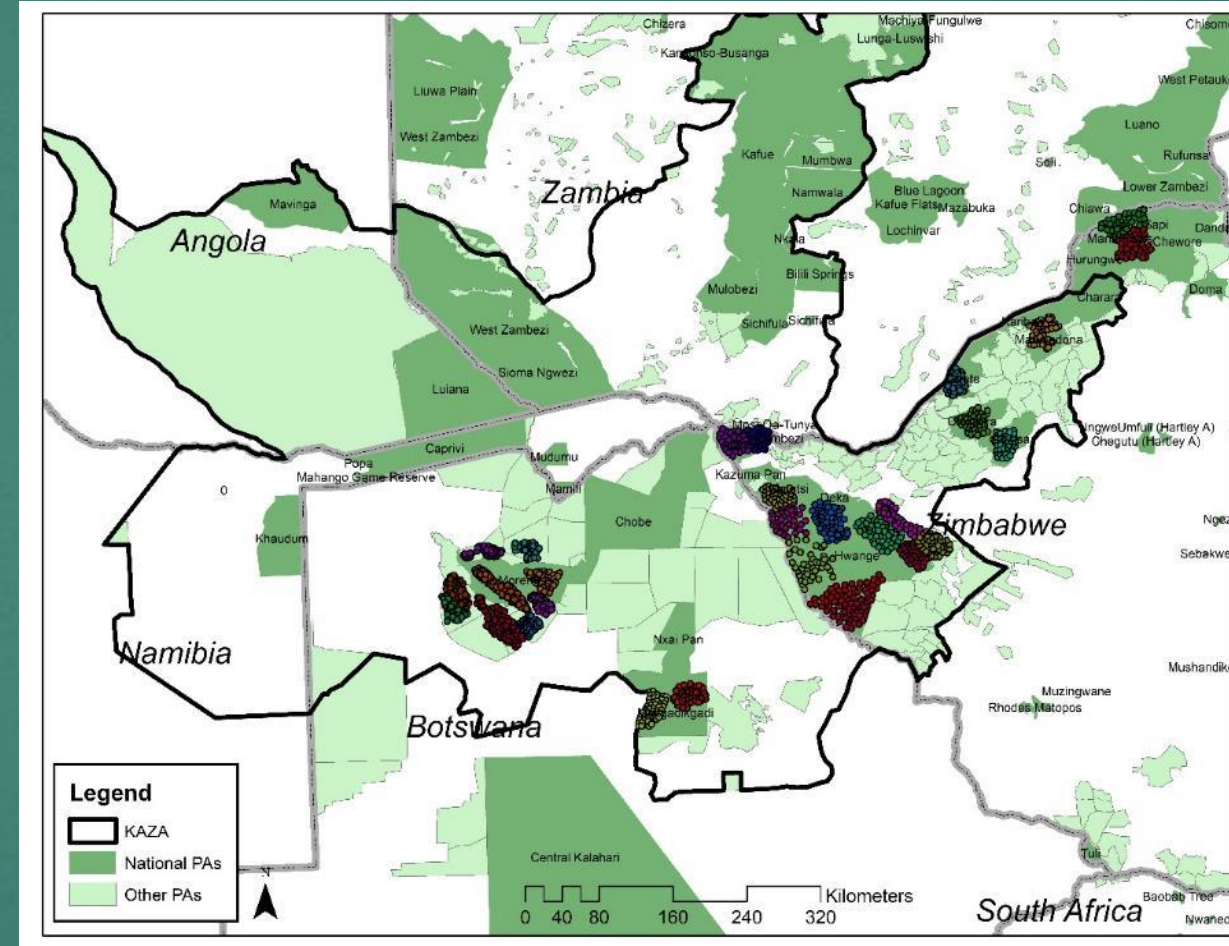
Participatory land use planning
facilitated by WCS and USFS,
Tanintharyi Region, Myanmar.

Study Areas

Southeast Asia



Kavango-Zambezi Transfrontier Conservation Area



Project Progress

Year 1: project concept endorsed by Directors of Wildlife from the five KAZA countries - Angola, Botswana, Namibia, Zambia, Zimbabwe



Project Progress

New Collaboration

- Chobe Zambezi Wildlife Dispersal Area integrated land-use planning and management project
- Led by WildCRU and TransKalahari Predator Programme with KAZA
- Wide variety of stakeholders including local land boards, government ministries, wildlife tourism operators, and NGOs

Joint workshop planned for this September

- Habitat suitability and connectivity models
- Participatory mapping
- Human-wildlife conflict zones
- Sustainable livelihood options
- Conservation/Development scenarios

Project Progress

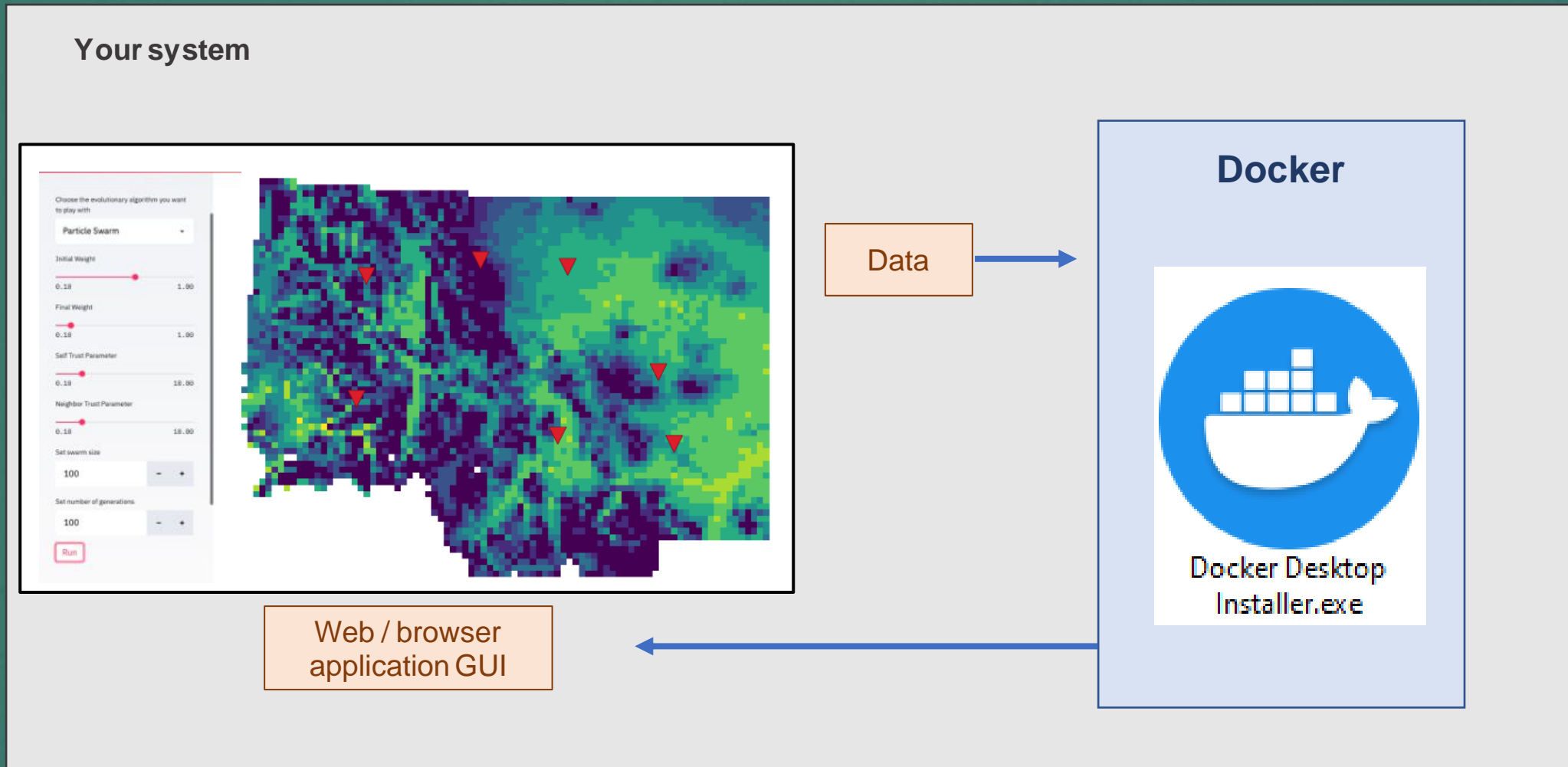
Software Development

- Adding core functionality e.g. simulate effect of reintroductions on population genetic structure, automatically generate coordinates for connectivity analysis
- Updating pure python algorithms with C++, OpenMP aware functions for efficient parallel connectivity mapping
- Simplifying user inputs
- Developing Streamlit web application
- “Dockerizing” everything to simplify distribution and installation



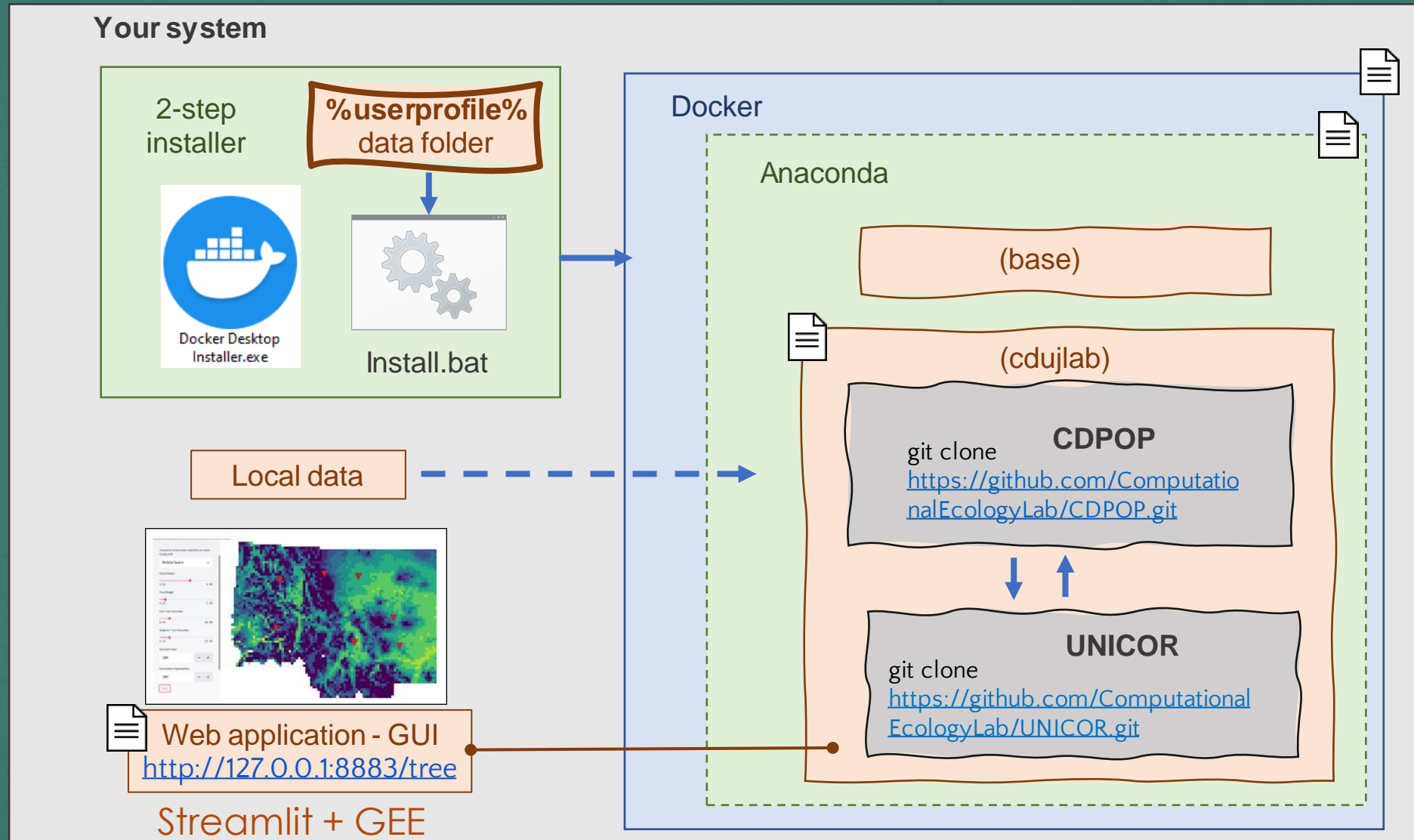
Software architecture

What users see:



Software architecture

What we are building:



Streamlit Web App

CDPOP-UNICOR Landscape Genetics and Connectivity Simulator



Edit input CSV file

	xyfilename	agefilename	mcruns	looptime	output_years	gridformat	cdclimgentime	output_uni
0	xyfiles/xyED16_known_NAs	agevars/Agevars_nonOverlap.csv	1	5	0 1 2	cdpop	0	N
1	xyfiles/xyED16_hetmort	agevars/Agevars_nonOverlap.csv	1	5	1	cdpop	0	Y
2	xyfiles/xyED16	agevars/Agevars_nonOverlap.csv	1	5	1	cdpop	0	N

Upload CDPOP CSV file

Drag and drop file here

Limit 200MB per file • CSV

Browse files



inputvars.csv

1.5KB

Output file path

C:\Users\pj\Projects\output.csv

Upload UNICOR parameter file

Drag and drop file here

Limit 200MB per file • RIP

Browse files

Output UNICOR file path

C:\Users\pj\Projects\unicor_output.kde

Next check in, ARL 4. Aiming for ARL 5 September 2023.

Thank You!!



Patrick.Jantz@nau.edu

Global Earth Observation &
Dynamics of Ecosystems
(GEODE) Lab

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